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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,567

09/10/2003

Dianne E. Egnor

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EXAMINER

FILE, ERIN M

ART UNIT

PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/659,567

Applicant(s)

EGNOR ET AL.

Examiner

Erin M. File

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 9, 12, 13, 15-20 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 10, 11 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/2/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the an interleaver coupled between said multiuser detector processors and said decoders of claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 8, 9, 12, 13, 15-17, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Mills et al. (U.S. Patent No. 6,999,498).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

**Claims 1, 8, Mills discloses:**

- a plurality of received signals from a corresponding plurality of users, wherein said received signals are divided into blocks of data for each of said users (col. 6, lines 28-29);
- a plurality of multiuser detector processors coupled to said received signals, wherein each of said multiuser detector processors processes a

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portion of said blocks for each of said users within a processing window (fig. 6a, 640);

- a plurality of decoders coupled to said multiuser detector processors, wherein said decoders process all the blocks for one of the users, once said multiuser detector processor is finished processing an entirety of one of said blocks for the one of said users (fig. 6a, 650).

**Claim 2,** Mills further discloses each of said received signals are respectively coupled one of said multiuser detector processors (fig. 6a, 435(1..3), col. 7, 58-59).

**Claim 3,** Mills further discloses each of said multiuser detector processors are respectively coupled one of said decoders (fig. 6a, 645(1...3), col. 7, lines 16-17).

**Claims 4, 12,** Mills further discloses decoders uses a Viterbi algorithm (col. 6, lines 6-8)

**Claims 5, 13,** Mills further discloses the multiuser detector processor uses maximum a posteriori (MAP) decoders (col. 6, lines 6-8).

**Claim 9,** Mills further discloses improved processed blocks of data are fed back to said multiuser detector for iterative processing (fig. 6b, 540,550, 560).

**Claim 15,**

- performing parameter estimation of said bit streams (fig. 3, 310 shows frequency estimation, one parameter of the received signal, col. 5, line 66-col. 6, line 1);

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- processing said bit streams using a multiuser detector, wherein said multiuser detector processes a portion of each of said blocks of data within a frame boundary (fig. 6a, 640);
- interrupting said processing at each said frame boundary, wherein one of said blocks of data is completely processed for one of said users at each said frame boundary (at the end of each decoded symbol, a decision of whether to further process is made, col. 9, lines 23-31);
- decoding all of said blocks of data from said multiuser detector for said one of said users and producing a higher quality symbol bit stream (fig. 6a, 650);
- refreshing said one of said blocks of data (col. 8, lines 41-45);
- repeating said steps of interrupting, decoding and refreshing until a final state is obtained; and, outputting a final symbol stream for each user (fig. 6b, 540, 550, 560, 565 shows an apparatus for iteratively decoding, fig. 7, 720, 725, 730, 735, 740, shows a method of iteratively decoding data blocks).

**Claim 16**, Mills further discloses a final state can be reached in a fixed number of iterations (col. 7, lines 23-25).

**Claim 17**, Mills further discloses the final state is an allowable performance level (col. 7, lines 14-22).

**Claim 19**, Mills further discloses processing is performed in parallel (col. 7, lines 59-61).

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**Claim 20**, Mills further discloses processing is performed sequentially (col. 7, lines 59-62).

### ***Claim Objections***

4. Claim 5 is objected to because of the following informalities:

In Claim 5, the acronym "FANO" should be properly defined. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of Claim 15, "refreshing said one of said blocks of data" is unclear.

It is not well known in the art what the term "refreshing" the data would mean in this context. The specification fails to bring any further clarification of this term.

Therefore the recitation "refreshing said one of said blocks of data" is found to be indefinite.

***Allowable Subject Matter***

7. Claims 6, 7, 10, 11, 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File



1/4/2007

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER